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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/721,806	11/24/2000	Richard Hans Harvey	0655/63676	3613

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EXAMINER
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PANNALA, SATHYANARAYA R

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/721,806

Applicant(s)

HARVEY, RICHARD HANS

Examiner

Sathyanarayan Pannala

Art Unit

2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 9-10, 14-18 and 22-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-10, 14-18 and 22-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission of Amendment filed on 2/25/2005 has been entered.
2. Applicant's Amendment filed on 2/25/2005 has been entered with added claims 14-26.

## **PART A**

### ***Election/Restrictions***

3. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-5, 9-10, 14-18, and 22-23, the independent claim 1 is claiming for a method for processing a database service query, and other independent claim 9 claiming for a directory service arrangement, independent claim 14 claiming for a method of processing a directory service query and independent claim 22 claiming for a directory service arrangement. All these claims are drawn to Query Processing, classified in class 707, subclass 3.

- II. Claims 6-8, 11-12, 19-21 and 24-25, the independent claim 6 is claiming for a method of processing database service query, and the other of independent claims 11 and 24 are claiming for a directory service arrangement and manipulating the query to display without duplicates and displaying results. Independent claim 19 is claiming for a directory service query and manipulating the query and displaying results other than claim 11. All these claims are drawn to database query augmenting and refining in class 707, subclass 5.
- III. Claims 13 and 26, the independent claim 13 is claiming for a method of processing a database service query including translating service query to an expression and whereas the independent claim 26 is claiming for a method of processing a directory service query and translating the directory service query to an expression. Both claims are drawn to Database query formulation, input preparation or translation in class 707, subclass 4.
4. The inventions are distinct, each from the other because of the following reasons:
- a) Inventions I-III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant application, each of the respective inventions have a separate utility as in a system not having the others. See MPEP ' 806.05(d).

- b) Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
- c) Because these inventions are distinct for the reasons given above and the search required for Group I is not required for any other group, restriction for examination purposes as indicated is proper.
- d) Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. A telephone call was made to Mr. Richard F. Jaworski on May 5, 2005 to request an oral election to the above restriction requirement. A day latter he responded the election of Group I claims with a traverse.

6. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

**PART B**

8. Claims 6-8, 11-13, 19-21 and 24-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 5/6/2005 by a voice message in response to the telephone conversation.

9. In this Office Action, claims 1-5, 9-10, 14-18, and 22-23 are pending on the basis of elected group I claims.

**Drawings**

10. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### **Claim Objections**

11. Claims 9, 14 and 22 are objected to because of the following informalities:  
Claims 9 and 22 preamble states as directory service arrangement whereas the limitation as relating to database. Examiner suggests amending the claim preamble to relate limitations. Regarding claim 14, the limitation "receiving a service query" is not consistent with the next limitation "applying principles of logic to the directory service query to obtain a sum of terms." Examiner suggests amending the first limitation as "receiving a directory service query." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made."

13. Claims 1-5, 9-10, 14-18 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corn et al. (US Patent 6,356,892), and in view of Lohman et al. (US Patent 6,112,198).

14. As per independent claims 1, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33).

Claim 1 is interpreted on the basis of the Fig. 2. Corn teaches the claimed "applying principles of logic to the service query to obtain a sum of terms" as the method begins at step 60 by parsing an LDAP filter-based query for elements and logical operators for the filter query (Fig. 5, col. 5, lines 37-40). Further, Corn teaches the claimed "evaluating each term as a separate SQL instruction" as for each filter element, the method continues to generate SQL subquery according to a set of translation rules (Fig. 5, col. 5, lines 40-44). Corn teaches client machine sending a request (Fig. 1, col. 4, lines 5-7), which is analogous to receiving a service query. However, Lohman teaches the claimed "receiving a service query" as a given query (col. 2, lines 47). Finally, Lohman teaches the claimed "executing each separate SQL instruction" as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (col. 2, lines 47-48). Corn teaches slitting the received query and does not explicitly teach executing subqueries separately, whereas Lohman teaches as a given query is broken up into subqueries and executing separately in parallel using several processors. Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Lohman's teachings would have allowed Corn's method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).



15. As per dependent claim 2, Corn teaches the claimed “expanding each term to remove NOT operators” as if a pair of LDAP filter elements are subject to an LDAP logical operator, the corresponding EID sets are merged using an SQL NOT IN logical operator (Fig. 5, col. 7, lines 50-52).

16. As per dependent claim 3, Corn teaches the claimed “a sum of terms are expanded using Boolean logic” as complex search filters are generated by combining basic filters with Boolean operators (col. 7, lines 3-4).

17. As per dependent claim 4, Corn teaches the claimed “the service query is an X.500 or LDAP service query” as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

18. As per independent claim 9, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33). Corn teaches the claimed “a database using a plurality of tables, each table having a plurality of rows and columns, and storing arbitrary data” as the invention provides hierarchical LDAP searches using relational tables in the LDAP directory service having a relational database management system as backing store (col. 2, lines 60-63). Corn teaches the claimed “processing a service query by applying principles of logic to the service query to obtain a sum of terms” as the method begins at step 60 by parsing an LDAP filter-based query for elements and logical operators for the filter query (Fig. 5,

col. 5, lines 37-40). Further, Corn teaches the claimed "evaluating each term as a separate SQL instruction" as for each filter element, the method continues to generate SQL subquery according to a set of translation rules (Fig. 5, col. 5, lines 40-44). Corn explicitly does not explicitly teach executing subqueries separately. However, Lohman teaches the claimed "executing each separate SQL instruction" as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (col. 2, lines 47-48). Corn teaches slitting the received query and does not explicitly teach executing subqueries separately, whereas Lohman teaches as a given query is broken up into subqueries and executing separately in parallel using several processors. Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Lohman's teachings would have allowed Corn's method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

19. As per dependent claim 10, Corn teaches the claimed "the directory service arrangement including means to perform X.500 or LDAP services" as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

20. As per independent claim 14, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33).

Claim 1 is interpreted on the basis of the Fig. 2. Corn teaches the claimed "applying principles of logic to the service query to obtain a sum of terms" as the method begins at

step 60 by parsing an LDAP filter-based query for elements and logical operators for the filter query (Fig. 5, col. 5, lines 37-40). Further, Corn teaches the claimed "mapping the sum of terms to SQL" as to provide a method for mapping LDAP search queries into an SQL query (col. 2, lines 51-54). Further, Corn teaches the claimed "evaluating each mapped term as a separate SQL instruction" as for each filter element, the method continues to generate SQL subquery according to a set of translation rules (Fig. 5, col. 5, lines 40-44). Corn teaches client machine sending a request (Fig. 1, col. 4, lines 5-7), which is analogous to receiving a service query. However, Lohman teaches the claimed "receiving a service query" as a given query (col. 2, lines 47). Corn explicitly does not explicitly teach executing subqueries separately. However, Lohman teaches the claimed "executing each separate SQL instruction" as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (col. 2, lines 47-48). Corn teaches slitting the received query and does not explicitly teach executing subqueries separately, whereas Lohman teaches as a given query is broken up into subqueries and executing separately in parallel using several processors. Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Lohman's teachings would have allowed Corn's method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

21. As per dependent claim 15, Corn teaches the claimed "expanding each term to remove NOT operators" as if a pair of LDAP filter elements are subject to an LDAP

logical operator, the corresponding EID sets are merged using an SQL NOT IN logical operator (Fig. 5, col. 7, lines 50-52).

22. As per dependent claim 16, Corn teaches the claimed “the sum of terms are expanded using Boolean logic” as complex search filters are generated by combining basic filters with Boolean operators (col. 7, lines 3-4).

23. As per dependent claim 17, Corn teaches the claimed “the service query is an X.500 or LDAP service query” as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

24. As per dependent claim 18, Corn teaches the claimed “the service query is a search service query” as LDAP provides the capability for directory information to be efficiently queried and it offers a rich set of searching capabilities with which users can put together complex queries to get desired information from a backing store (col. 1, line 65 to col. 2, line 2).

25. As per independent claim 22, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33). Corn teaches the claimed “a database using a plurality of tables, each table having a plurality of rows and columns, and storing arbitrary data” as the invention provides

hierarchical LDAP searches using relational tables in the LDAP directory service having a relational database management system as backing store (col. 2, lines 60-63). Corn teaches the claimed "processing a service query by applying principles of logic to the service query to obtain a sum of terms" as the method begins at step 60 by parsing an LDAP filter-based query for elements and logical operators for the filter query (Fig. 5, col. 5, lines 37-40). Further, Corn teaches the claimed "mapping the sum of terms to SQL" as to provide a method for mapping LDAP search queries into an SQL query (col. 2, lines 51-54). Further, Corn teaches the claimed "evaluating each mapped term as a separate SQL instruction" as for each filter element, the method continues to generate SQL subquery according to a set of translation rules (Fig. 5, col. 5, lines 40-44). Corn explicitly does not explicitly teach executing subqueries separately. However, Lohman teaches the claimed "executing each separate SQL instruction" as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (col. 2, lines 47-48). Corn teaches slitting the received query and does not explicitly teach executing subqueries separately, whereas Lohman teaches as a given query is broken up into subqueries and executing separately in parallel using several processors. Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Lohman's teachings would have allowed Corn's method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

26. As per dependent claim 23, Corn teaches the claimed "The directory service arrangement including means to perform X.500 or LDAP services" as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

### ***Response to Arguments***

27. Applicant's arguments filed on 2/25/2005 in the Amendment with respect to claims 1-5, 9-10, 14-18 and 22-23 have been considered but are moot in view of the new ground(s) of rejection.


a) After a thorough search for a prior art with reference to Applicant's Amendment and the specification, the old references have been withdrawn and two new references are added. These references are very close to the current invention and all claims listed above are rejected using them.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sathyanarayan Pannala  
Examiner  
Art Unit 2167

srp  
May 15, 2005